

F.C. Drawn
BOWLES'S
K 1890
Artist's Assistant

I N

DRAWING, PERSPECTIVE,
ETCHING, ENGRAVING, || MEZZOTINTO-
SCRAPING, PAINTING on GLASS,
in CRAYONS, and in
WATER-COLOURS,

And on SILK or SATIN.

C O N T A I N I N G

THE EASIEST AND MOST COMPREHENSIVE
R U L E S

For the Attainment of those truly
USEFUL and POLITE ARTS,

Methodically digested, and adapted to
The CAPACITIES of YOUNG BEGINNERS,

ILLUSTRATED WITH

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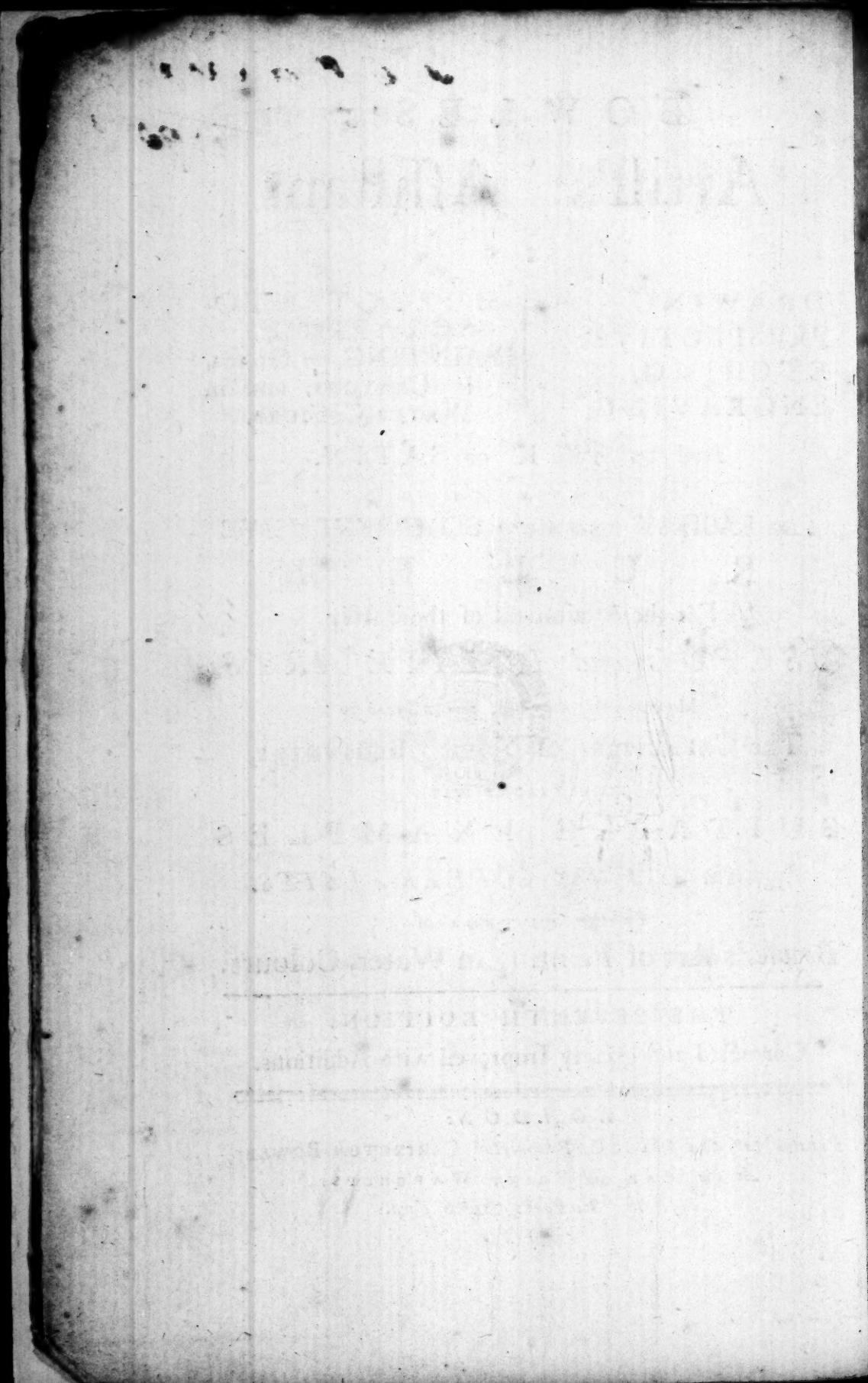
By the AUTHOR OF
Bowles's Art of Painting in Water-Colours.

THE SEVENTH EDITION.

Corrected and greatly Improved with Additions.

L O N D O N:

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P R E F A C E.

IT has ever been the misfortune of those who have professed to lay down rules for the attainment of any art or science, to leave them enveloped with difficulties, which, if not utterly insuperable, at least discourage the learner from proceeding in a study which he can have little hopes will ever reward his pursuit.

From hence we may reasonably infer, that the said professors were totally unacquainted, if not with the theory, at least with the practical part of what they undertook to teach others; and that the instructions they have given were founded rather upon a bare supposition of their efficacy, than upon the surer basis of long and repeated experience, which alone could have ensured their success, and from which, with all due deference to the judicious, (whose sanction we shall at all times be ambitious to deserve) we may venture to answer for the practicability of our own.

To obviate every objection, and to remove all those difficulties which had so long blocked up the path of science, and retarded, if not wholly impeded the pupil, in his progress to the Temple of Fame, was the chief view in compiling the subsequent little Treatise.

Over and above the improvements made in illustrating the several arts hitherto so imperfectly and unintelligibly explained, we have introduced directions for *Scraping in Mezzotinto*, which, in this edition, are still further enlarged, and which, as they have never been before attempted in any book of this kind, we flatter ourselves will be the more acceptable; especially when it shall appear from the rules laid down for the performance of this art, that it is so easy to be attained, that a tolerable proficiency in *Drawing*, will enable any one to undertake it with all imaginable prospect of success.

The reader will also find, in this impression, the addition of very useful problems, in the article of Perspective, illustrated by a new plate.

As this book is chiefly intended for the use of young practitioners, we have purposely avoided all abstruse expressions and obsolete terms, contenting ourselves with such a familiar style as we judged most likely to inform those minds we would wish to improve: yet, as the ideas of an artist are not wholly to be conveyed without some necessary terms peculiar to each branch, we have taken care to explain such as could not be omitted without a manifest injury to the work, by familiar words of a synonymous tendency, wherever they occur; so that we apprehend we have not left the least stumbling-block for the reader to encounter.

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J U S T

JUST PUBLISHED.

1. *BOWLES's new and accurate Four-sheet Map of the World, or Terrestrial Globe*, laid down by the best observations and newest discoveries; particularly those lately made in the South Seas, by Anson, Byron, Wallis, Bouganville, Cook, and other celebrated circumnavigators; illustrated with a variety of useful projections and representations of the heavenly bodies; the most approved astronomical and geographical definitions, tables, and problems; with an easy and familiar explanation of the most curious and interesting phenomena in the universal system. Measures 4 feet 1 inch wide, and 3 feet 5 inches deep. Price 15s. in sheets; 1l. 1s. on cloth and rollers.

2. *Bowles's new and accurate Four-sheet Map of Europe*, divided into its empires, kingdoms, states, republics, and principalities, laid down from surveys and observations of the most celebrated geographers, corrected from late remarks, with many additions and valuable modern improvements. Measures 4 feet 1 inch wide, and 3 feet 5 inches deep. Price 15s. in sheets; 1l. 1s. on cloth and rollers,

3. *Bowles's new and accurate Four-sheet Map of North America, and the West Indies*; exhibiting the extent and boundaries of the United States; the British dominions, and territories possessed in that quarter by the Spaniards, the French, and other European powers. The whole compiled and laid down from the best authorities, regulated and divided according to the definitive treaty of peace, signed at Versailles, 1783. Measures 4 feet wide, and 3 feet 4 inches deep. Price 15s. in sheets; 1l. 1s. on cloth and rollers.

 The above new Four-sheet Maps, are laid down from the latest observations and discoveries; neither pains nor expense has been spared to render them superior in point of accuracy and elegance, to all other Maps of the World, Europe, and North America, ever engraved.

BOWLES's Artist's Assistant, &c.

C H A P. I.

O F D R A W I N G.

DRAWING is the art of representing by outlines and shadows, the various productions of nature and art, and of enlarging and contracting objects in the most exact proportion.

This art recalls to our memory things long since past, and rescues from oblivion the deeds of our most illustrious ancestors, at the same time that it revives their image in our mind, by preserving their features for many generations. In a word, it may be said to be the silent, but most expressive language of nature, which speaks to the eye, is understood by all nations, and conveys an idea where even words themselves would prove deficient.

After giving some general directions for the attainment of this truly polite and rational amusement, which is the basis on which all the rest of the arts depend, we shall consider it more particularly under the

following heads, and lay down the most copious and intelligible rules for each respectively, viz.

<i>Copying of Draughts,</i>	<i>Landscape,</i>
<i>Enlarging and Contracting,</i>	<i>Light and Shadow,</i>
<i>Imitation of Life,</i>	<i>History.</i>
<i>Drapery,</i>	

The implements necessary for drawing are, a ruler, compasses, charcoal, a black-lead pencil, penknife, porte-crayons, black, white, and red chalk, crayons, Indian ink, crow-quill pens, camels hair pencils, fitches, India rubber, paper of several sorts, and porte-folios.

GENERAL RULES FOR DRAWING.

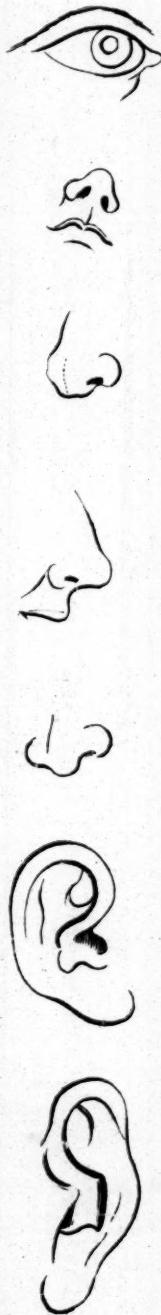
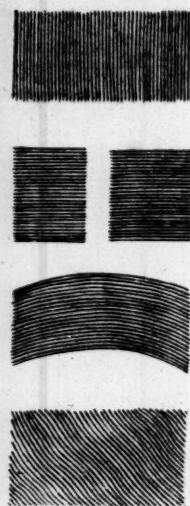
THE first thing to be observed is the choice of proper originals; and here we would recommend *Bowles's Youth's Assistant in Drawing*, by *Seb. Le Clerc*, engraved on Fifty Copper Plates, as the easiest and best calculated for the instruction of beginners. This may be had, Price 3s. of *Carington Bowles*, No. 69, *St. Paul's Church Yard*.

[*N. B. A list of new, pleasing, and instructive Drawing Books, adapted for the further improvement of young gentlemen and ladies in this polite art, is added at the end of this book.*]

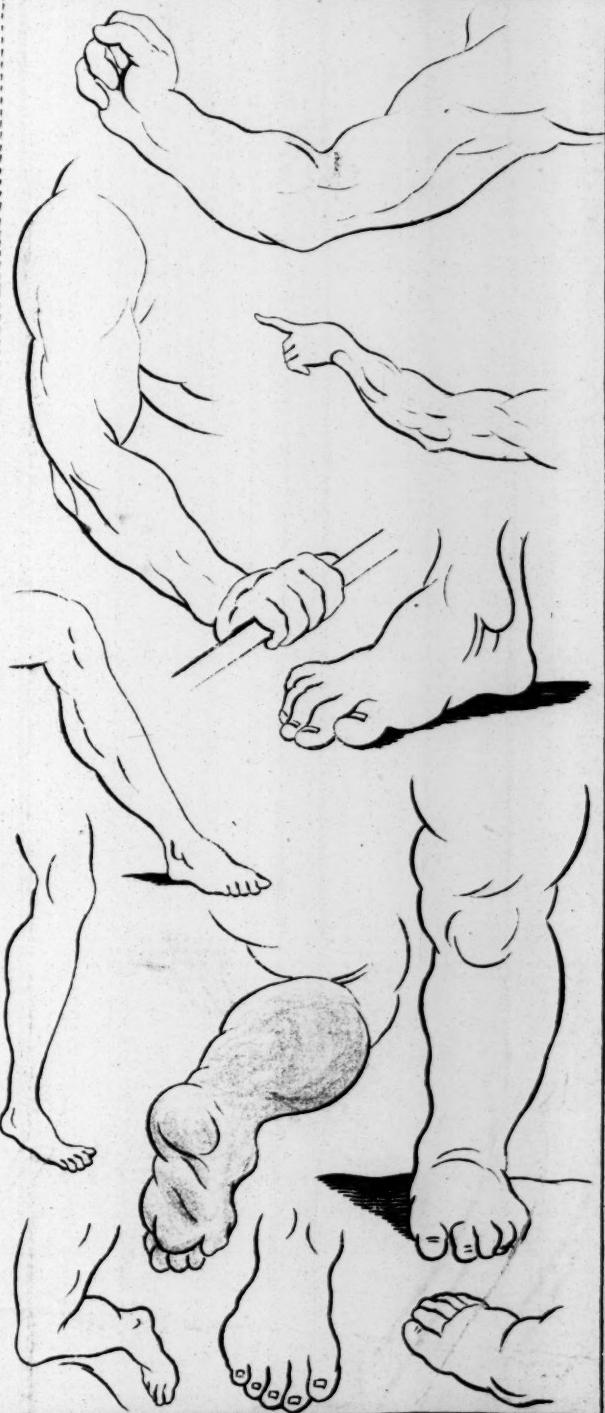
Having provided this, begin with the outlines of the several features, as eyes, nose, mouth, ears, &c. as they occur in the book. Practise these often over, till you are quite master of them; then proceed to a profile or side face, after that to an oval or full face; always remembering that each of these must be perfectly attained before you venture to proceed further.

When you can copy a face correctly, the next thing is, to draw the several limbs or parts of the body, as the hands, arms, feet, legs, &c. then go on

FIRST DRAWING PLATE.



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to the body itself ; which being done, you will be able to undertake a whole figure, observing carefully the exact proportions and bearings of one part with respect to the other.

The learner ought to be particularly cautious that he does not attempt a whole figure before he has made himself master of the several parts, for this is beginning the work at the wrong end, and is indeed the same thing, as if a man should attempt to climb to the top of a house without the help of the stairs.

As for beasts, birds, fruit, plants, &c. we deem it useless to give directions for drawing them, as it is well known, that he who has so far improved his ideas as to be able to draw a human figure correctly, will find it no difficulty to perform every other branch of this art.

Sketch or draw all your outlines faintly, with a piece of soft charcoal (which may be known by the pith in the middle) cut to a point like a pencil ; and when you see any thing amiss, whisk it out with a handkerchief or feather, correct your errors with a black-lead pencil, and compare your work with the original, till every part of them perfectly correspond. This done, finish your outlines with black-lead or Indian ink. This advice, properly attended to, will save you an infinite deal of trouble, in drawing over and over again, to your no small discouragement.

If you prefer Indian ink, rub it with water upon a marble, and with a crow-quill pen perfect your outlines ; then rub out the marks of the pencil with bread, or India rubber.—Keep three or four different shades of ink in the hollows of your stone, to distinguish your distances, reserving one of the holes for water.

When you are thoroughly versed in the outlines, your next business will be to learn to shadow : but of this hereafter, under the article of *Light and Shade.*

Be not too hasty at first setting out, which will impede your progress, and hinder your improvement ; whereas, by bestowing a little more time, you will attain perfection sooner than you can well imagine, and expedition will come of itself as you become more experienced.

OF COPYING OF DRAUGHTS.

WHEN you would copy a print or drawing exactly of the same size, rub the back of it with the dust of red chalk or black lead ; lay this upon your paper, and pin it down at the four corners ; then with a blunt point trace the outlines and breadths of the shadows ; which done, having carefully examined it, to see that nothing be omitted, take it off, and finish it with the pencil or pen.

Another way to make an exact copy, and at the same time to preserve the original, is, to lay a piece of transparent paper upon it, and draw the outlines thereon with a black lead pencil ; then between that and the paper you intend to draw upon, place a piece of thin post-paper, reddened or blackened at the back ; after which, proceed to trace and finish it according to the foregoing rule.

If you would reverse your original, you need only turn the transparent paper, with the drawing you have made upon it, downwards upon the post paper, and trace it as before directed.

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Fig.I.

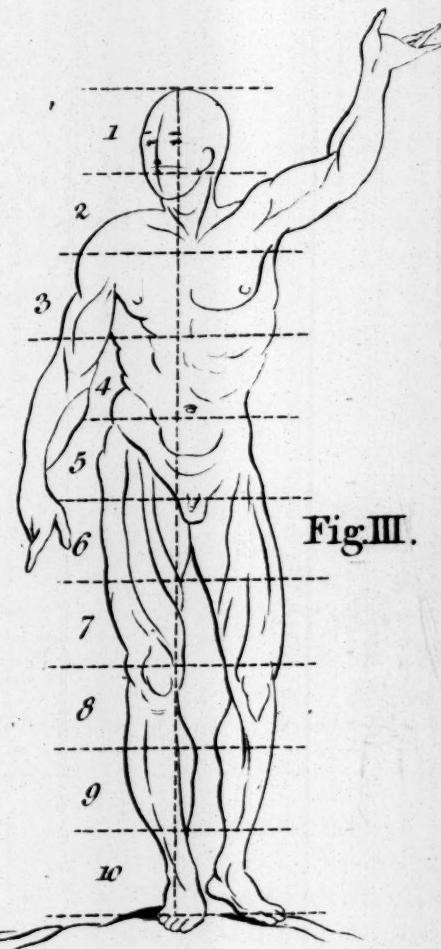
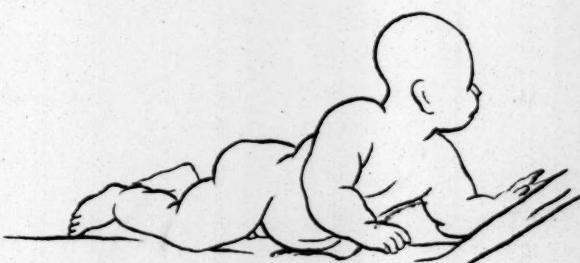


Fig.III.



OF ENLARGING AND CONTRACTING.

DIVIDE your original with a pair of compasses into any number of squares, and rule them across with a black lead pencil from side to side, and from top to bottom.

Then, having your paper of the size you intend, divide it into the same number of squares, either bigger or less, as you would enlarge or contract it.

Place your original before you, and draw square by square the several parts, observing to make the part you are drawing, fall into the same part of the square as it does in your original. To prevent mistakes, number the squares, both of the original and copy, as in *Fig. I.* and *II.* of the drawing plate.

Then outline it with Indian ink, rub out the marks of the pencil with bread, or India rubber, and shade it at pleasure.

OF IMITATION OF LIFE.

LET the person you draw after be of a proportionable size, and well shaped; place him in the easiest and most natural attitude; then sketch faintly with your charcoal the head, or any of the limbs separately; which having carefully done, proceed to finish with your pencil.

When you have sufficiently practised the several parts, or limbs, you may draw the whole figure in whatever attitude you think proper to place it; beginning with the easiest and proceeding by degrees to the more difficult postures, as time and experience shall enable you.

Be sure to finish your outlines so correctly, marking all the muscles as they occur, that, even before you give it any shadow, it may have some resemblance of the person.

The true proportion which one part of a human figure bears to another, may be seen in *Fig. III.* which will serve as a standard to examine your drawing by, except where the figure is to be fore-shortened, in which case nature will be the best guide.

In drawing of a likeness, care must be taken to express the passions in the most lively manner; which is to be done, by observing the peculiar cast and disposition of every feature, with the exactest nicety: and as this is, of all the parts of drawing, by far the most difficult, it will require a more than ordinary attention, and should be last attempted.

OF DRAPERY.

DRAPERY is the art of cloathing your figures with elegance and propriety.

When your naked figure is outlined, first draw the outlines of the drapery lightly, then the greater folds, and afterwards the lesser, observing never to let them cross each other.

Particular regard is to be had to the quality of the drapery, as the folds of stuff or woolen cloth are more abrupt and harsh, and those of silk more flowing and easy. Linen, cambrick, gauze, &c. as their substance is lighter than either, require a still greater delicacy in expressing the waving of the folds, by the faintness of their shadows.

The

The drapery should not stick too close to the body, but must seem to flow round it as it were, yet in such a manner, that the motion of the figure may be free and easy. A great lightness and motion of the drapery should only be used, when the figures are supposed to be in much agitation, or exposed to the wind; but in a calm place, and free from violent action, their drapery should be large and flowing, in order to give them a more graceful appearance.

Let the loose parts of the drapery blown by the wind all flow one way; and draw that part which lies closest to the body, before you draw those which fly off.

Suit your garments to the body, and make them bend with it: the closer the garment sticks to the body, the narrower and smaller must be the folds; and if it fits quite close, there will be no folds at all, but must only have a faint shadow to represent the part of the body which lies under it.

By observing diligently in what manner the drapery flows upon any person standing or sitting before you for that purpose, you will see in what manner to dispose your folds and shadows, according to the unerring rule of nature.

OF LANDSCAPE.

LANDSCAPE represents the face of the country, as it appears to our view, with all the various objects analogous thereto; as towns, castles, churches, houses, trees, hills, cattle, rivers, rocks, ruins, &c.

Be careful to augment or lessen every object, according to its distance, making the most remote objects fainter and less distinct, as they appear to the eye, and enlarging them proportionably as they advance nearer.

Shew

Shew the sky cloudy or clear as occasion requires ; and if you introduce the sun, let it be rising or setting ; either of which representations will give an additional grace to your picture, as they represent nature in its liveliest and most agreeable appearance.

Adapt every part of your landscape to the season of the year, and the time of the day you intend it to represent ; and dispose your lights and shades with consistent propriety.

Lastly, we would recommend it to practitioners in this noble art, to rise early in a fine morning, that they may have a better idea of the harmony and beauty of the works of the Great Creator, which would wonderfully replenish their minds, as to colour and effect.

OF LIGHT AND SHADE.

THE distribution of light and shade in a picture is absolutely necessary to be known ; as it not only determines the proper distance of one object from another, without which the whole would be an undistinguishable mass of confusion, but it gives likewise to each respective object its substance, roundness, and effect.

Shadowing is performed with the pen or pencil ; in either of which great judgment is required.

Having made your outlines correct, the first thing is to observe from which side of the original the light comes in ; which if natural, is either from the right-hand or left ; for whenever the light appears in the middle of a picture, and seems to glare more than ordinary, it is caused by a candle, a lamp, or some other luminous body, and is called an artificial light.

Lay on your light tints first, disposing them as you see they are done in the original ; and then proceed to the deeper ones, till you come to the darkest parts of all ; for you may at any time darken your shadows, when you cannot lighten them.

Let all your shadows in the same piece fall on the same side ; that is, if the right-side of a man's face be dark, so must be the right-side of his body, arm, leg, thigh, &c. But if the light side be darkened by the opposition of some other body intercepting the light, it must receive a contrary shadow.

Make your shadows fainter as they grow towards the light, beaking them gradually, that they may not appear too sudden or harsh.

If you shade with black lead, or with crayons, you may blend your shadows, and soften them one into another as you require, with a stump made of paper or glove-leather, rolled and tied hard, and cut almost to the point, with which you may also weaken your shades where they are too strong.

When one part of the body projects over or before another, the part projecting must receive a stronger light : those parts that bend inward must be made so much the darker, and shadowed deepest next the light.

Two equal lights must never be made in the same picture; the strongest light should fall upon the middle of the piece, where the principal figures ought to stand, diminishing gradually towards the extremities.

By frequently examining into nature, you will have an opportunity of improving your ideas of light and shade, and will be enabled to form a proper judgment of the effect which the different rays or degrees of light

will produce in a picture; for which reason you should never let slip an opportunity of remarking the various appearances you meet with.

OF HISTORY.

THIS branch of drawing presents to our view things past, present, and future.

An historical picture must describe the transaction represented, in a manner so clear and conspicuous, as to convey an idea of it to our minds, as fully as could be done by a verbal description ; and care must be taken to preserve such an analogy or connection between the figures, that not one may seem to be introduced but for some end or purpose. And as, in dramatic writing, it is essential to make every person speak consistent with the part he represents, so here it will be equally necessary to observe the same propriety of character, and make every figure look the sentiment it is intended to express.

For the choice of subjects the practitioner is left to his discretion. Books will furnish him with abundance. But there will be no need to ransack the venerable rubbish of Greek or Roman antiquity, while there is so fair an opportunity of doing justice to the merit of our gallant countrymen and fellow subjects, by recording the heroic actions they have atchieved, which, as they reflect the highest honour on this kingdom in general, it will be meritorious to perpetuate, by such a laudable tribute of gratitude to their memory.

C H A P. II.

O F P E R S P E C T I V E

PE RSPECTIVE is the art of delineating objects (as they appear in nature upon a plain surface) according to their distance and height perpendicular to the horizon, between the object and the eye.

This art is of great consequence to those who would excel in drawing, etching, engraving, carving in bas-relief, or painting ; for being well understood, the artist will be enabled to know when to adhere to the strict rules, and when to depart from them with propriety.

EXPLANATION OF THE TERMS USED
IN PERSPECTIVE.

1. **B**ASE or *Fundamental Line*, is the bottom line of the drawing on which the person is supposed to stand, with his face towards the point of sight.
2. *Perpendicular* is a line drawn upright with respect to any part of the base.
3. *Parallel Lines* are lines equidistant from each other as the horizon to the base.
4. *Horizon* is the most distant part of a plane, where the clouds, seeming to touch the earth, limit the sight. The horizontal line gives the height of the eye ; for we cannot see any thing above the horizon which does not exceed this height : yet the summit of a mountain may be above the horizon, though its foot be far beneath it.

5. *Point of Sight* is that part of the horizontal line where all the visual rays center in a point.

6. *Visual Rays* are beams of light conveying the likeness of any object to the eye or sight, and the knowledge thereof to the mind or understanding.

7. *Points of Distance* are supposed points set off on the horizontal line, at equal distances on each side the point of sight.

8. *Diagonal Lines* are those drawn from the points of distance to the extremities of the base line.

9. *Abridgment of the Square* is the line where the diagonals intersect or cross the visual rays, and must always run parallel to the base. It is only made where the sight is limited by a perpendicular, as the farther end of a church, hall, room, &c. And supposing a person to stand thereon, a parallel line drawn through the point of sight will seem to pass through the eyes, and will consequently shew what height that person ought to be,

The nine foregoing definitions are illustrated in Fig. I. of the perspective plate.

10. *Point of direct View.* This is nothing more than the front view of a house, church, &c. or, in other words, a geometrical elevation raised from a plan or ground-plot, and comprehending an equal space on both sides of the point of sight. See Fig. XIV.

11. *Point of oblique View*, is when we see the object sideways or aslant. Example : Suppose a person was to draw a view of a canal, with some remarkable building he is desirous to shew more distinct, he must place himself (on the base or fundamental line)

line) opposite to that building, that the ray of light may be more oblique ; by which means the admired building will be less fore-shortened, and appear to greater advantage, the points of sight being still before him, though not in the middle of the picture. See Fig. XV.

12. *Accidental Points* are those where objects end in the horizontal line, but neither in the points of sight or distance ; and serve for streets, houses, chairs, roads, &c. which take different directions. As for example : Suppose a street leading to the point of sight, and from it two others branch, the one on the right hand, the other on the left, and take a different direction ; these two last streets make what we call *Accidental Points*, terminating in some part of the horizontal line, on each side of the point of sight. See Fig. XVI. The same is to be observed in a grove, park, &c. where the walk you are in directs immediately to the point of sight, and the avenues branching out on either side terminate also in different parts of the horizon.

Ichnography is the plan or ground-plot of any object that is to be raised in Perspective.

Scenography is the art of bringing any thing raised in Perspective from an ichnographic plan to its due proportion, according to the distance in which it is placed ; that all objects may be diminished according to their distance in a picture, in the same degree as they are diminished by distance in a natural prospect. A scenographic view may be either direct, as in Fig. XIV. or oblique, as in Fig. XV.

AS the art of Perspective is constructed upon geometrical principles, it will be necessary, previous to the rules themselves, to learn the following introductory operations.

1. *From a point in a given line A B to raise a perpendicular.* See Fig. II.

Draw with the ruler the given line A B; then set one foot of your compasses in B, and extending them to rather more than half the length of the line A B, sweep the arch c d; and with the same extent of compasses set one point in c, and sweep the arch e f; then, without altering the compasses, set one foot in g, and describe the arch h i; next rule through the points c g, to intersect the arch h i in k, and draw the line from k to B, which is the perpendicular required.

2. *Another way.* See Fig. III.

From the point A take the equal distances A B and A C on each side of it; then stretch the compasses to any distance greater than A B or A C, and with one foot of them in B, sweep the arch d e; then, with the same extent of the compasses, set one point in C, sweep the arch f g; and these two arches will intersect each other in the point h, from which a line drawn to the point A is the perpendicular required.

3. *To draw one line parallel (or equidistant) to another given line A B.* See Fig. IV.

Extend your compasses to the distance of the parallel you require; then with one foot in any point of the given line, as in c, describe the arch d e. Again, without altering the compasses, fix one foot in any other point, as in f, and sweep the arch g h; then rule the line I K, touching the outward parts of the two arches, and that will be the parallel to the given line.

4. To bisect or divide a given line AB into two equal parts. See Fig. V.

Take with your compasses any distance greater than half the given line; then, with one foot of them in B, sweep the arch *c c*; and with the same distance, setting one foot in A, sweep the arch *d d*; and these arches will intersect each other in the point *g b*; which joined by a perpendicular, will intersect AB in the middle point *i*.

5. Upon the end A of a given line AB to raise a perpendicular. See Fig. VI.

Place one foot of the compasses in A, and extend them to any point *c* without the given line; then set one foot of them in *c*, and turn the circle *d e* and A, and through *d c* draw the diameter *d c e*, meeting the circle in *e*, join *A e*, and that right line is the perpendicular required.

6. To turn the circle through any three given points not in a right line. See Fig. VII.

Fix three points at any distance you think proper, as at AB and C, and join them by the right lines AB and BC: then by Fig. V. bisect the line AB with the line *d e*; which done, bisect the line BC with the line *f e*; and from the center *e*, where these lines meet, extend your compasses to A, and describe the circle ABCG.

7. To draw an Oval. See Fig. VIII.

Draw a given line AB, which divide into four equal parts; set one foot of the compasses at C, and from that center describe a circle *ee*; with the same extent of com-

compasses place one foot in the center D, and turn the circle *ff*; then with one foot still in D, extend your compasses, and turn the arch *gg*; and with the same extent, placing one foot in C, describe the arch *hh*; join the intersections with a perpendicular from *i* to *k*; next, place one foot of the compasses in *i*, sweep the arch *LL*, and without altering them, set one foot in *k*, and describe the arch *MM*.

8. Another method for an Oval. See Fig. IX.

Draw a given line *AD*, and with the compasses extended, placing one foot in *B*, with the other turn the circle *ee*; then, without altering your compasses on the line *AD* in the supposed point *C*, sweep the circle *ff*, and through the points *gg*, where the two circles intersect, draw the perpendicular *hi*; then fix your compasses with one foot in *h*, and extend them so as to describe the arch *kk* to the lower extremities of the circle; then, with the same extent, with one foot in *i*, sweep the arch *ll*, to join the upper extremities.

By these examples it will appear, that an oval of any form or size may be constructed at pleasure, only taking care always to fix the compasses equidistant from the given line *AD* in the perpendicular *hi*.

PRACTICAL EXAMPLES IN PERSPECTIVE.

1. To draw a square pavement in Perspective.

See Fig. X. and XI.

SUPPOSE your piece of pavement to consist of 64 pieces of marble, each a foot square. Your first business is, to draw an ichnographical plan or ground plot of it, which is thus performed. Having made an exact square of the size you intend your plan, divide

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the base and horizon into eight equal parts, and from every division in the base to its opposite point in the horizon, rule perpendicular lines; then divide the sides into the same number, ruling parallel lines across from point to point: so will your pavement be divided into 64 square feet; because the eight feet in length, multiplied by the same in breadth, give the number of square feet or pieces of marble contained in the whole: then rule diagonals from corner to corner; and thus will your ground-plot appear as in *Fig. X.*

Now; to lay this in Perspective, draw another square to your intended size, and divide the base line A B into eight equal parts, as before ; then fix your point of sight C in the middle of the horizon D E, and from the same point rule lines to every division in the base A B ; after which, rule diagonal lines from D to B, and from E to A, answerable to those in the ground-plot, and your square will be reduced to the triangle A B C ; then from the point F, where the diagonal D B intersects the line A C, to the opposite intersection G, where the diagonal E A crosses the line C B, rule a parallel line, which is the abridgement of the square.

Then through the points where the diagonals cross the rest of the lines which go from the base to the point of sight, rule parallel lines, and your square pavement will be laid in perspective, as in *Fig. XI.*

2. To find the height and proportion of any objects, as they appear above the horizon on a supposed plane. See Fig. XII.

First rule your horizontal line NO, and fix your point of sight, as at M ; then mark the place of your nearest pillar, by making a dot for the base or bottom, as at A ; and another for the summit or top, as at B : rule a line

from A to the point of sight M, and another from B to M, and these two lines will give the height of any number of pillars. As for example: Suppose you would have a pillar at C, fix your dot for the base, and rule from thence a parallel line to meet the diagonal AM at D; then rule the perpendicular DE to the diagonal BM; which perpendicular is the height of your figure required at C. Or, if you would place pillars at F and I, observe the same method, ruling the parallels FG and IK, and the perpendiculars GH and KL will give their heights at the distances required.

To find the diameter or thickness of pillars at any particular distances, you are also to be guided by that nearest the base. For instance: Suppose your nearest pillar AB to be ten feet high, and one foot in diameter: divide it from top to bottom into ten equal parts: and set off one of them upon the base of the pillar: then rule a line from the point of sight M to the diameter P, and you will have the thickness of all your pillars on their respective parallels or bases.

3. *The same rule exemplified in objects below the horizon. See Fig. XIII.*

If you would know the heights of a number of figures below the horizon, rule your horizontal line QR, fix your point of sight, as at P; then place your nearest figure, or mark the dots for the head and feet, by the points A and B, which answers the same purpose; and rule from these dots to the point of sight the lines AP and BP; and if you would find the height of a figure to be drawn at c, rule from thence the parallel cd to the diagonal BP, and the perpendicular de will give the height

height required. The same directions will shew the height of a figure at any other distance you have a mind to place it, as at *f*, *i*, and *m*, by ruling the parallels *fg*, *ik*, and *mn*; and from each of these their respective perpendiculars *gh*, *kl*, and *no*; which perpendiculars will shew the heights of the figures at *f*, *i*, and *m*.

4. *To draw a direct View.* See Fig. XIV.

To illustrate this example, suppose you were to draw the inside of a church, as represented in this figure: First take your station at the point *A*, in the centre of the base line *BC*; from which you have a front view of the whole body of the church, with all the pillars, &c. on each side; then fix your horizon at any height you think proper, as at *DE*: bisect it by the perpendicular *EA*: and where these two lines intersect, is the point of sight *F*. (This perpendicular will pass through the centres of all the arches in the dome or cupola; which centers may be found by any three given points, as in *Fig. VII.*) Next divide your base line into any given number of feet; and the visual lines, ruled from these divisions to the point of sight, will reduce all your objects to their just proportion, by setting off their height upon a perpendicular raised at their respective distances. The base, in the example here given, is divided into twelve equal parts of five feet each; from which (supposing your front column to be 35 feet high) take seven divisions from the base line of your drawing, and set them off upon the perpendicular *GH*; then, (supposing this column to be five feet thick at the base,) set off one of those divisions upon the parallel *IK*, which is the breadth required. So that, by proportioning the scale to any distance by the foregoing di-

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rections, you may not only find the dimensions of all your columns, but also of every distinct part of them, as well as of all the doors, windows, and other objects that occur. For instance: Having found the height and breadth of your first, or nearest column G, draw from the top and bottom of the said column to the point of sight, the lines H F, and K F; after which, rule the line I F from the base of the column to the point of sight, and you have the height and breadth of all the rest of the columns, as has been already shewn in *Fig. XII.*

By ruling lines from the points, *a, b, c, d, &c.* to the point of sight, you will see that all the summits and bases of your columns, doors, windows, &c. must tend immediately to that point; and by lines drawn from the points *i, 2, 3, 4, &c.* on each side, to the correspondent points on the opposite side, may be seen all the parts of your building lying upon the same parallel.

5. To draw an oblique View. See Fig. XV.

First, draw your horizontal line A B; then, if your favourite object be on the left hand, as at C, place yourself on the right hand upon the base line, as at D; then from that station erect a perpendicular D E, which will pass through the horizon at the point of sight F; to which rule the diagonals G F and H F, which will shew the roof and base of your principal building C, and will also, as before directed, serve as a standard for all the rest.

Observe also, either in direct or oblique views, whether the prospect before you make a curve; for

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if it does, you must be careful to make the same curve in your drawing.

6. *To draw a Perspective View, wherein are accidental points.* See Fig. XVI.

Rule your horizontal line $a b$, and on one part of it fix your point of sight, as at c ; from which rule the diagonals $c d$ and $c e$ on one side, and $c f$ and $c g$ on the other; which will shew the roofs and bases of all the houses in the street directly facing you; (supposing yourself placed at A in the centre of the base line. Then fix your accidental points g and h upon the horizontal line, and rule from them to the angles $i k$ and $l m$, where the streets on each side take a different direction, towards the accidental points g and h ,) and the lines $g i$ and $g k$ give the roofs and bases of all the buildings on one side, as $l h$ and $m h$ do on the other.

Accidental points seldom intervene where the distance is small, as in noblemen's seats, groves, canals, &c. which may be drawn by the strict rules of perspective; but where the prospect is extensive and varied, including mountains, bridges, castles, rivers, precipices, woods, cities, &c. it will require such an infinite number of accidental points, that it will be better to do them as nature shall dictate, and your ripened judgment approve.

7. *To find the centre for the roof of a house, in an oblique view.* Fig. I. See plate IV.

Suppose from the point of sight, A, the visual lines $A B$ and $A C$ be drawn, $B C$ being one perpendicular given, and $D E$ the other, rule the diagonals

gonals from D to C, and from E to B, and the perpendicular FG raised through the point of their intersection, will shew the true centre of the roof, as will appear by ruling the lines GE and GC.

For want of being acquainted with this necessary rule, many who have been well versed in other parts of perspective, have spoiled the look of their picture, by drawing the roofs of their houses out of their true perpendicular.

8. To form a Square from a Line given.

See Fig. II.

First rule your base line to any length you please, as from A to B, then raise the perpendiculars (as in Fig. II. Plate III.) from A to C, and from B to D; next measure with compasses from A to B, setting one point in A, turn the arch EF; then with the same extent of compasses, set one foot in B, and describe the arch GH: lastly, rule from I to K, touching the outward parts of the arches where they intersect the perpendiculars, and you will find the required square.

9. To form a Parallelogram from a given Line.

See Fig. III.

First rule a given line the length required, as at AB; next raise a perpendicular at A, another at B, (as in Fig. II. Plate III.) and on them set off the proper heights, as AC and BD; join CD with a line, and you have the parallelogram complete.

C H A P. III.

O F E T C H I N G.

ETCHING is a method of working on copper, wherein the lines or strokes, instead of being cut with a graver, are eaten with aqua-fortis.

This art being executed with greater ease and freedom than engraving, represents curious subjects better, and more agreeable to nature, as figures, landscapes, ruins, and small faint, or remote objects, buildings, &c.

The principal materials for this art are the plate, hard and soft ground, (the first for winter, and the other for summer) a dabber, turpentine varnish, lamp-black, soft wax, and aqua-fortis, or spirits of nitre.

The tools are, an oil rubber, a burnisher, a scraper, a hand-vice, etching-boards, etching-needles, an oil-stone, and a parallel ruler.

The plate may be had of any size, and well polished, fit for use, of the copper-plate makers, in *Shoe lane, Holborn.*

Directions for laying the ground.

HAVING provided yourself with a print, *which is to be had of Carington Bowles, No. 69, St. Paul's Church Yard,* and with a plate of the size of the print or drawing you intend to copy, rub it well with an oil-rubber made of swanskin-flannel, till all the marks of the charcoal used in polishing it, entirely disappear; then

then wiping off the dirty oil with a linen rag, dip your finger in some clean oil, and touch it over every part of the plate; after which, with your burnisher polish the plate, till you can see your face in it; and in case any sand-holes or flaws appear, the scraper will assist you in taking them out. The marks left by the scraper are to be taken out with the burnisher, till nothing appear. Having fixed your hand-vice at one end of the plate, with a rag and whiting clear the plate carefully from grease; then heat it over a charcoal-fire, or lighted paper, till it will melt the ground, which is to be laid on thinly, and dabbed all over with the dabber, till it is perfectly smooth and even; then warm the plate again, and holding it up with the ground downwards, smoak it all over with a large candle, taking care that the snuff of it do not touch the ground, and waving the candle continually over every part, so that the ground may not be burnt by heating it more in one place than another. If the plate be large, you may bind four penny-candles together.

Directions for tracing.

THE first thing to be done, (while the plate is cooling, after the ground is laid) is to rub the back of your print or drawing all over with a bit of rag or cotton, dipt in the scrapings of red or white chalk, and shake off the loose dirt, or wipe it off gently with a clean rag. Place the red side upon the plate, making it fast at each corner with a little bit of soft wax. Lay your etching-board under your hand, to prevent bruising the ground; then with a blunt etching-needle trace lightly the outlines and breadths of the shadows, till the marks of them appear upon the ground, which you must take care not to penetrate by tracing too hard.

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As great nicety is required in this part of your work, it will be necessary now and then to lift up one corner of your original, and examine whether every part be traced before you take it off, as it will be extremely difficult to lay it down again in its former position.

Direction for Etching.

HAVING carefully traced your original, take it off, and lay a silk or linen handkerchief next the plate, and over that your etching-board; then proceed to the etching, for which observe the following directions, which are adapted to every particular branch, as landscapes, shipping, portraits, history, architecture, &c.

Distances in landscapes, or the faint parts of any other picture, are the first to be done; and these are to be worked closer, and with a sharper-pointed needle; the darker parts must be etched wider, and with a blunter needle; but, to prevent mistakes, the needles may be marked according to their different degrees, and the uses for which they are intended. As for the very faintest parts of all, they are to be left for the graver, or dry point; of which hereafter.

In building, and all architecture in general, use a parallel ruler; till frequent practice enables you to do them well enough without.

The needles may, when necessary, be whetted upon your oil-stone, keeping them turning in your hand, so as to whet them equally all round. The oil-stone will be farther useful in whetting the scraper, which is to be rubbed flat upon the stone, and with a steady hand, keeping oil constantly upon the stone.

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Of Biting or Eating-in the Work with Aqua-Fortis.

FIRST examine your work carefully, to see that nothing be omitted; and if any scratches appear upon the ground, or mistakes be committed in the etching, they are to be stopped out, which is done by covering them with a mixture of lamp-black and turpentine-varnish, laid on thinly with a hair-pencil, which, when dry, will resist the aqua-fortis. But it will be best to stop out these as they occur to you in the course of your work, for by this means they will be less liable to escape your notice; and when the varnish is dry, you may etch it over again, if required.

The next thing is to enclose the work with a rim or border of soft green, or other coloured wax, about half an inch high, bending the wax in the form of a spout at one corner, to pour off the aqua-fortis; and that it may not run out at any other part, take care to lay your wax so close to the plate, that no vacancies be left.

Your aqua-fortis must be single; and if too strong, as will be seen in the biting, take it off, and mix it with a little water, shaking them together in a bottle; and when it is too weak, it may be strengthened by mixing it in a bottle with a little double aqua-fortis. The bottle, which contains the aqua-fortis should have a large mouth, and a glass stopple.

Let the aqua-fortis lie on the plate a short time, wiping off the bubbles, as they arise, with a feather, which may remain upon the plate while it is biting; after which, take it off, and wash the plate with water; then

then let it dry, and by scraping off part of the ground from the faintest part of the work, try if it be bit enough ; and if not, stop out the part you have tried with the lamp-black and varnish ; and when that is dry, pour on the aqua-fortis again.

When the faint parts of your work are bit enough, stop them out, and proceed to bite the stronger parts, stopping them out as occasion requires, till the whole work is sufficiently bit : then warm the plate and take off the soft wax ; after which, heat the plate till the ground melts, pour on a little oil, and wipe the whole off with a rag. When the ground is taken off, rub the work well with the oil rubber, and wipe the plate clean, then proceed to finish it with the graver, according to the following directions.



C H A P. IV.

O F E N G R A V I N G.

TH E tools necessary for engraving are, the oil-rubber, burnisher, scraper, oil-stone, needles, and ruler, already mentioned to be used in etching; also gravers, compasses, and a sand-bag.

Gravers are of two sorts, square and lozenge: three of each sort should be provided. The first is used in cutting the broader strokes, the other for the fainter and more delicate. No graver should exceed the length of five inches and a half, the handle included, excepting for strait lines.

The sand-bag, or cushion, is used to lay the plate on, for the conveniency of turning it about, and may be had, together with the gravers, at the Ironmongers, in Foster lane; as may likewise the oil-stone, which must be of the Turkey sort.

Of whetting and tempering the Graver.

AS great pains are required to whet the graver nicely, particularly the belly of it, care must be taken to lay the two angles of the graver, which are to be held next the plate, flat upon the stone, and rub them steadily till they are polished like a mirror, and till the belly rises gradually above the plate, so as that, when you lay the graver flat upon it, you may just perceive the light under the point; otherwise it will dig into the copper, and it will be impossible to keep a point,

point, or execute the work with freedom. In order to this, keep your right arm close to your side, and place the fore-finger of your left hand upon that part of the graver which lies uppermost on the stone. When this is done, in order to whet the face, place the flat part of the handle in the hollow of your hand, with the belly of the graver upwards, upon a moderate slope, and rub the extremity or face upon the stone, till it has an exceeding sharp point, which you may try upon your thumb-nail. The oil-stone, while in use, must never be kept without oil.

When the graver is too hard, as is usually the case when first bought, and may be known by the frequent breaking of the point, the method of tempering the steel is as follows :

Heat a poker red-hot, and hold the graver upon it within half an inch of the point, waving it to and fro till the steel changes to a light straw-colour ; then put the point into oil to cool ; or, hold the graver close to the flame of a candle, till it be of the same colour, and cool it in the tallow ; but be careful either way not to hold too long, for then it will be too soft ; and in this case the point, which will then turn blue, must be broken off, and whetted afresh, and tempered again, if required. But be not too hasty in tempering ; for sometimes a little whetting will bring it to a good condition.

Of holding the Graver.

CUT off that part of the handle which is upon the same line with the belly, or sharp edge of the graver, making that side flat, that it may be no obstruction.

Hold

Hold the handle in the hollow of your hand ; and extending your fore finger towards the point, let it rest upon the back of the graver, that you may guide it flat, and parallel with the plate.

Take care that your fingers do not interpose between the plate and the graver ; for they will prevent you from carrying the graver level with the plate, and from cutting your strokes so clean as they ought to be.

Directions for Engraving.

LET the table or board you work at be firm and steady ; upon which place your sand bag with the plate upon it ; and holding, the graver as above directed, proceed to business in the following manner :

For strait strokes, hold your plate firm upon the sand bag with your left hand, moving your right hand forwards ; leaning lighter where the stroke should be fine, and harder where you would have it broader.

For circular or crooked strokes, hold the graver steadfast, moving your hand, or the plate, as you see convenient.

Learn to carry your hand with such a sleight, that you may end your stroke as finely as you began it ; and if you have occasion to make one part deeper or blacker than another, do it by degrees ; and that you may do it with greater exactness, take care that your strokes be not too close, nor too wide.

In the course of your work, scrape off the barb or roughness which arises, with the belly of your graver ; but be careful, in doing this, not to scratch the plate ; and that you may see your work properly as you go on,

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rub it with the oil rubber, and wipe the plate clean, which will take off the glare of the copper, and shew what you have done to the best advantage.

Any mistakes or scratches in the plate may be rubbed out with the burnisher, and the part levelled with the scraper, polishing it again afterwards lightly with the burnisher.

Having thus attained the use of the graver, according to the foregoing rules, you will be able to finish the piece you had etched, by graving up the several parts to the colour of the original; beginning, as in the etching, with the fainter parts, and advancing gradually with the stronger, till the whole is compleated.

The dry point (so called because not used till the ground is taken off the plate) is principally employed in the extreme light parts of water, sky, drapery, architecture, &c.

For your first practice, copy such prints as are openly shaded; the more finished ones being too difficult, till you have gained farther experience.

Great choice of prints of every kind, fit for young beginners, may be had of *Carington Bowles*, No. 69, St. Paul's Church-yard.

N. B. To prevent any obstruction from too great a degree of light, we would recommend the use of a sash, made of transparent or fan paper, pasted on a frame, and placed sloping at a convenient distance between your work and the light. This will not only preserve the sight, but, when the sun shines, cannot possibly be dispensed with.

C H A P.

C H A P. V.

OF MEZZOTINTO-SCRAPING.

THIS art, which is of late date, is recommended to the practice of the ingenious reader, for the amazing ease with which it is executed, especially by those who have any notion of drawing.

Mezzotinto prints are those which have no hatching or strokes of the graver, but whose lights and shades are blended together, and appear like a drawing of Indian ink.

The tools used in this art are, The copper plate, oil stone, grounding tools, scrapers, burnisher and needles.

Directions for laying the Mezzotinto Ground.

MARK off upon the bottom of the plate the distance you intend to leave for the writing, coat of arms, &c. then, laying your plate with a piece of swanskin flannel under it upon your table, hold the grounding-tool in your hand perpendicularly, lean upon it moderately hard, continually rocking your hand in a right line from end to end, till you have wholly covered the plate in one direction. Next, cross the strokes from side to side, afterwards from corner to corner, working the tool each time all over the plate, in every direction almost like the points of a compass; taking all possible care not to let the tool cut (in one direction) twice in a place.

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This done, the plate will be full, or, in other words, all over rough alike, and would, if it were printed, appear completely black.

Having laid the ground, take the scrapings of black chalk, and with a piece of rag rub it over the plate, or you may, with two or three candles, smoke it, as before directed for etching.

Now, take your print or drawing, and having rubbed the back with red chalk dust, mixed with white lake, proceed to trace it as directed, page 32.

Directions for Whetting the Grounding-Tool.

IF a tooth of the tool should break, it may be perceived in the working by a particular streak or gap, which will appear in the ground in a strait line; in which case the tool must be whetted on the back, holding it slopeing, and in a circular manner, like the bottom of the tool.

Directions for Scraping the Picture.

TAKE a blunt needle and mark the outlines only; then with a scraper scrape off the lights in every part of the plate, as clean and smooth as possible, in proportion to the strength of the lights in your picture, taking care not to hurt your outlines. And that you may the better see what you do, with the thumb and fore finger of the left hand hold a piece of transparent paper, slopeing, just over your right hand, and you will soon be a judge of the different tints of the work you are doing; scraping off more or less of the ground, as the different strength of light and tints require.

The use of the burnisher is, to soften or rub down the extreme light parts after the scraper is done with, such as the tip of the nose, forehead, linen, &c. which might otherwise, when proved, appear rather misty than clear.

Another method used by mezzotinto-scrappers, is to etch the outlines of the original, as also of the folds in drapery, marking the breadth of the shadows by dots, which having bit of a proper colour with aqua-fortis, according to the directions given page 34 and 35, take off the ground used in etching, and having laid the mezzotinto-ground as in page 40, proceed to scrape the picture as above.

Four or five days before you think the plate will be ready for proving, notice must be given to the copper plate printer, to wet some French paper, as no other will do for printing them, and as that time is necessary for it to lie in wet. When the proof is dry, touch it with white chalk where it should be lighter, and with black chalk where it should be darker; and when the print is retouched, proceed as before for the lights, and for the shades use a small grounding-tool, as much as you judge necessary to bring it to a proper colour; and when you have done as much as you think expedient, prove it again, and so proceed to prove and touch, till it is entirely to your mind. When the plate tarnishes in the part where you are at work, a little vinegar and salt kept by you in a vial will take it off, wiping it dry with a clean rag.

Avoid as much as possible overscraping any part before the first proving, as by this caution the work will appear the more elegant.

C H A P. VI.

OF PAINTING UPON GLASS.

PAINTING upon glass is an art which has generally appeared difficult; yet there is no representation can be more elegant than that of a picture done well in this manner; for it gives all the softness that can be desired in a picture, and is easy to work; as there are no outlines to draw, nor any shade to make, but the colours are put on without the trouble of either.

The pictures are those done in mezzotinto; for their shades being rubbed down on the glass, the several lines which represent the shady part of any common print, are by this means blended together, and appear as soft and united as in any drawing of Indian ink.

Provide such mezzotintos as you like; cut off the margin; then get a piece of fine crown glass, the size of your prints (as flat and free from knots or scratches as possible); clean the glass, and lay some Venice turpentine, quite thin and smooth, on one side thereof, with a brush of hog's hair. Lay the print flat in water, and let it remain on the surface till it sinks; it is then enough; take it carefully out, and dab it between some papers, that no water may be seen, yet so as to be damp.

Next, lay the damp print, with its face uppermost, upon a flat table; then, holding the glass over it, without touching the turpentine till it is exactly even with the print, let it fall gently on it. Press the glass down

carefully with your fingers in several parts, so that the turpentine may stick to the print; after which, take it up; then holding the glass towards you, press the print with your fingers, from the center towards the edges, till there be no blisters remaining.

When this is done, wet the back of your print with a sponge, till the paper will rub off with your fingers; then rub it gently, and the white paper will roll off, leaving the impression only upon the glass. Then let it dry, and with a camels-hair pencil, dipt in oil of turpentine, wet it all over, and it will be perfectly transparent, and fit for painting.

Colours proper for Painting upon Glass.

THE several sorts of colours ground in oil for this purpose, and tied up in little bladders, may be had at the colour shops.

Whites.

Flake White.
Spodium.

Blacks.

Lamp-Black.
Ivory-Black.

Browns.

Spanish Brown.
Umber.

Reds.

Rose Pink.
Vermilion.
Red Lead.
Indian Red.
Native Cinnaber

Yellows.

English Pink.
Massicot.
English Ochre.
Spruce Ochre.
Dutch Pink.
Orpiment.

Blues.

Blue-Bice.
Prussian Blue.
Saunders Blue.
Smalt.

Indigo.

Greens.

Verdigrise.
Terre Verte.
Green Verditure

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The ultramarine (for blue), and the carmine (for red), are rather to be bought in powders, as in that case they are less apt to dry, or be lost; and as the least touch of these will give the picture a cast, mix up what you want for present use with a drop or two of nut-oil upon your pallet, with your pallet-knife.

The pallets and pallet-knives, may be had at the colour-shops, or ivory turners.

To get the colour out of the bladders, prick a hole at the bottom of each, and press it till you have enough upon your pallet for present use; because the colours are apt to dry and skin over.

Then lay a sheet of white paper on the table, and taking the picture in your left-hand, with the turpentine side next you, hold it sloping (the bottom resting on the white paper), and all the outlines and tints of the print will be seen on the glass; and nothing remains but to lay on the colours proper for the different parts, as follows:

The Method of using the Colours.

AS the lights and shades of your picture open, lay the lighter colours first on the lighter parts of your print, and the darker over the shaded parts; and having once laid on the brighter colours, it is not material if the darker sorts are laid a little over them; for the first colour will hide those laid on afterwards. As for example :

Reds.

Lay on first the red lead, and shade with lake or carmine.

Yellows.

Yellows.

The lightest yellow laid on first, may be shaded with Dutch pink.

Blues.

Blue-bice or ultramarine, used for the lights, may be shaded with indigo.

Greens.

Lay on verdigrise first, and then a mixture of that and Dutch pink. This green may be lightened by an addition of Dutch pink.

When any of these colours are too strong, they may be lightened to any degree, by mixing white with them upon your pallet; or you may darken them as much as you please, by mixing them with a deeper shade of the same colour.

The colours must not be laid on too thick; but if troublesome, thin them before you use them, with a little turpentine-oil.

Take care to have a pencil for each colour; and never use that which you have used for green with any other colour, without first washing it well with turpentine-oil, as that colour is apt to appear predominant when the colours are dry.

Wash all the pencils after using in turpentine-oil.

Your glass, when painted, must stand three or four days free from dust, before it be framed.

All sorts of mezzotinto and other prints proper for painting on glass, may be had of CARINGTON BOWLES, No. 69, St. Paul's Church Yard.

C H A P. VII.

O F PAINTING I N CRAYONS.

C R A Y O N S are to be had in boxes, every colour partitioned off separately, to prevent mixing.

The best are those of Switzerland.

The different colours are white, black, yellow, orange, red, purple, blue, green, and brown ; and each of these have their several shades, excepting the two first.

Directions for using them.

T HE paper to be used on this occasion is rough Venice paper, of a whitened-brown colour, and the stiffer the better. That sort called Cape-paper is found to be the best, because upon that the colours best distribute themselves. By this method figures may be drawn in their proper colours as they appear to the eye, because the colours may be matched with the crayons, and the crayons being dry, will not alter their colour; but the colours, when wet, appear deeper than when they are dry, which is apt to deceive a young beginner.

Another way to make the necessary preparations, is to take some of the thickest and smoothest light blue or other paper, and get a straining-frame from a frame-maker's or carpenter's, on which strain some coarse Scotch or Irish cloth, drawing and fastening it with small tacks round the edges, till it be quite smooth; after which, with a sponge and fair water gently wet the blue paper, and then with a brush or rag paste the paper

paper all over, and lay it carefully on the cloth, exactly even with the straining-frame ; after which take it up, and laying white paper on the table, place the blue paper downwards ; with one hand keep the straining-frame steady, and with the other rub the cloth close to the paper ; do this very carefully ; and taking it up, lay it on the table with the blue paper upwards, and a piece of paper under your hand, and rub it close to the straining frame, without touching any other part, then let it stand to dry ; after which, set it on an easal, (which may be had at the colour-shops) and proceed as follows :

Make the first sketch or rough-draught with charcoal ; then with black, white, or red chalk, correct what you see amiss. The outline being thus completed, rub in your crayons according to their proper colours, and then with your finger or fitch soften and blend them together.



C H A P. VIII.

OF PAINTING IN WATER-COLOURS.

THE materials necessary for this art are gum, colours, hair-pencils, fitches, a pallet and pen-knife.

The colours in general are white, black, brown, red, yellow, blue, and green.

The several species of each are as follow :

Whites.

Ceruse.

Flake White.

Spanish White.

Spodium.

White Lead.

Constant White.

Blacks,

Burnt Cherry-Stones.

Ivory Black.

Lamp-Black.

Keating's Black.

Browns.

Spanish Brown.

Spanish Licorice.

Umber.

Bistre.

Reds.

Burnt Ochre.

Carmine.

Cinnabar-Lake.

Minium:

Indian Lake.

Indian Red.

Red Ink.

Red Lead.

Vermilion:

Yellows.

English Ochre.

Gall-stone.

Gambodge.

Massicot, dark and light.

Ochre de Luce.

Orpiment.

Dutch Pink, dark and light

Roman Ochre.

Saffron.

Blues.

Blue Bice.

Blue Verditure.

Saunders Blue.

Prussian Blue, dark and
light.

Indigo.

Litmose.

Smalt.

Ultramarine.

Terre Blue

Greens.

Green Bice.

Green Pink.

Sap Green.

Verdigrise.

Green Verditure,

G.

Most

Most of the preceding colours may be had ready prepared in shells, or lumps, as also the hair-pencils, at the colour shops. If you use lumps, a grind-stone and muller must be provided, which are to be of pebble, and may be had at the stone-cutters, and the colour shops.

Directions for making the following mixed Colours.

Ash Colour. **W**HITE and lamp-black ; or indigo and
and black ; or cherry-stone and white,
shaded with ivory-black.

Bay Colour. Vermilion, with a little Spanish brown and
black.

Bright Red. Indian lake and native cinnabar.

Carnation. Lake and white, shaded with lake.

Changeable Silk. Red lead and water of massicot, shaded with
sap-green.

Cloud Colour. White, light massicot ; or lake and white
shaded with blue verditure ; or blue ver-
diture alone.

Crimson. Cinnabar-lake and white, shaded with lake.

Flame Colour. Vermilion and orpiment ; or red lead and
massicot, heightened with white.

Flesh Colour. White, with a little lake, and red lead ; add
yellow ochre for a swarthy complexion.

French Green. Light pink and Dutch bice, shaded with
green pink.

Glass Gray. Ceruse, with a little blue of any kind.

Hair Colour. Massicot, umber, yellow ochre, ceruse,
ochre-de-luce, and cherry-stone black.

Lead Colour. Indigo and white.

Light Blue. Blue bice, heightened with ceruse or
spodium.

Light green. Pink and smalt, with white, if need require.

Lion Tawny. Red lead and massicot, shaded with umber.

Murrey. Cinnabar-lake and white lead.

Orange. Red lead and a little fine massicot, shaded
with gall-stone and lake.

Orange

Orange Tawny. Cinnabar, light pink and a little massicot, shaded with gall-stone and lake.

Pearl Colour. Carmine, with a little white, shaded with lake.

Popinjay Green. Green and massicot ; or pink and a little indigo, shaded with indigo.

Purple. Indigo, Spanish brown and white ; or blue bice with red and white lead ; or blue bice and lake.

Russet. Cherry-stone black, and white.

Scarlet. Red lead and lake, with or without vermillion ; or carmine and Indian lake ; or native cinnabar and red lead shaded with indian lake.

Sea Green. Bice, pink and white, shaded with green pink.

Sky Colour. Light massicot and white, for the lowest and lightest parts ; red ink and white for the next ; blue bice and white for a third degree ; and blue bice alone for the highest part of all. These are to be all softened into one another at the edges, so as not to appear harsh.

Sky Colour for Blue bice, and Venice ceruse ; or ultra-

Drapery. marine and white, shaded with indigo.

Straw Colour. Yellow massicot, and a very little cinnabar, shaded with dark pink.

Violet Colour. Indigo, white and cinnabar lake ; or fine Dutch bice and lake, shaded with indigo ; or litmose, smalt, and blue bice ; the latter most predominant.

Water. Blue and white shaded with blue, and heightened with white.

Directions for using the Colours:

YOUR pencils must be fast in their quills, and sharp pointed after you have drawnt em through your mouth.

Before you begin, have all your colours ready before you, and a pallet for the convenience of mixing them ; a paper to lay under your hand, and to keep your work clean, as well as to try your colours upon ; also a large brush called a fitch, to wipe off the dust when your colours are dry.

Lay your colours on but thinly at first, deepening and mellowing them by degrees as you see occasion. The quicker you lay them on, the evener and cleaner your drawing will appear.

Take care to preserve all your colours from dust ; and before you use them wipe your shells and pallet every time with a fitch.

When you have done your work, or would lay it aside, be careful to wash your pencils clean in warm water.

For face painting, mix up a little light carnation or flesh colour, with gum water, in a shell by itself. If it be for a fair complexion, mix vermillion and white flake together ; and for a swarthy one, add to the former a little massicot or English ochre, or both.

Let your flesh colour be always lighter than the complexion you would paint : for by working on it you may bring it to its true colour.

In a large shell, or upon your pallet, lay your different shades of flesh-colour at a convenient distance from each other ; and always have ready a sufficient quantity of white to lighten your shadows.

For

For the cheeks and lips use a mixture of lake and red lead, or carmine, as occasion requires; and for blue tints, (as under the eyes and in veins) indigo or ultramarine and white.

For gray faint shadows, use white, English ochre, sometimes masticot; for deep shadows, white, English ochre, umber; for darker shadows, lake and pink, which make a good fleshy shadow.

In colouring landscapes, at first only lay dead colours smooth all over the piece, leaving no part uncovered; and be not over-curious in this part of the performance, but rather use a masterly freedom; and the work, though seemingly rough to the eye, will have a good effect when placed at a distance.

Let not the roughness of the colour discourage you; for it is easily to be softened by degrees with the other shadows, observing only to soften and heighten them according as the light falls.

In some places lay on strong touches, and in those places bring your work up together to an equal roundness and strength; tempering and sweetening your colours with a sharper pencil than the first, that no lumps or harsh edges be left, but that all your shadows may lie dispersed, soft, and smooth, gliding gently, as it were, into one another.

You are not to finish any part before the other, but work up all the parts gradually alike, till you see nothing wanting to complete your picture.

Having laid your dead colours, begin first with the lightest parts, as the sky, sun-beams, &c. then the yellowish beams (which are to be done with masticot and white); next the blueness of the sky (with ultramarine or smalt alone). For purple clouds only, mix lake and white, making your colours deeper as they go upwards from the horizon, except in tempestuous skies. The tops of distant mountains must be worked

so faint, that they may seem to lose themselves in the air.

Bring your colours forwards, as your distance decreases; painting your first ground next the horizon downwards of a blueish sea-green, and as you advance forwards, of a reddish or darker green, till you come to the fore-ground itself, which as it is to be the darkest part of all, do with dark green, shaded with a dark brown or yellow; which rule of shadow will also serve for the trees on each respective ground.

All distant objects are to be made imperfect as they appear to the eye, as has been already observed under the article of Light and Shade, page 16.

In colouring trees, boughs, and branches, touch in all the dark shades first, raising the lighter leaves above the darker by adding masticot to the dark green, which may be made with bice, pink, and indigo, for the uppermost of all, which are to be done last; touch lightly the extremities of the leaves with a little green, masticot, and white, and set off the darkest shadows with sap-green and indigo.

These rules are adapted to general appearances; but the learner may deviate from them as nature shall dictate.

With regard to drapery, fruit, flowers, and other branches of painting, the best observations are to be taken from the objects themselves, rather than the most curious and exact representations of them.

RECEIPTS FOR THOSE WHO PAINT IN WATER-COLOURS.

To make Gum-Water.

DISSOLVE one ounce of pure white gum-arabic, and half an ounce of double-refined sugar, in a quart of spring-water; strain it through a fine sieve or a piece of muslin, and bottle it off for use, keeping it free from dust.

Another

Another Way.

Take some gum-arabic of the whitest sort, bruise it, and tie it up in a piece of woollen cloth, and steep it in spring-water in a glass or earthen vessel, till it is dissolved. If it be too stiff, add more water; and if too thin, more gum.

With this water you may temper most of your colours; using such a quantity, that being touched when dry, the colours will not come off. If the colour shines, there is too much gum in it.

To keep the Flies from your Work.

When you have made your gum-water according to either of the foregoing directions, add thereto a little coloquinteda, which will preserve your work, when exposed, from being spoiled by the flies.

To make Liquid Gold for Vellum-Painting, Fans, &c.

Grind the finest leaf-gold with strong gum-water very fine, adding as you grind it more gum-water as you see necessary. When you have ground it as fine as you can, wash it in a large shell; then temper it with a little mercury sublimate, bind it in the shell with a little dissolved gum, shake and spread it equally all over the shell, and use it with fair water only.

To make Liquid Silver for the same Purpose.

The process for this is the same with that of liquid gold, only observing in the using it to temper it with glaire of eggs instead of water.

To make the Glaire of Eggs.

Take the whites, and beat them with a spoon till they rise all in a foam; let them stand all night, and they will be clarified into good glaire.

To

To recover Liquid Silver that has contracted rust.

If your silver, by length of time or damp weather, becomes rusty, cover that part of your work with juice of garlick, which will effectually recover it.

To keep the Colours from sinking.

Boil four ounces of roche-alum in a pint of spring-water, till it is thoroughly dissolved; then filter it through brown paper, and keep it for use.

Before you lay on your colours, take a sponge, and wet the back of your paper with this water while it is hot. This will not only prevent the colours from sinking, but will likewise give them an additional beauty and lustre, and preserve them from fading. If your paper is not good, it must be washed three or four times with this water, drying it every time.

If your prints are to be varnished, wash them all over with white starch before you begin to lay on your colours.

To make Size for painting Scenes, and other Candle-Light Pieces.

Steep a quarter of a pound of the cuttings of white glove-leather in water for some time; then take them out, and boil them in three quarts of water till it wastes to a pint, and strain it through a cloth into an earthen pan. When the size is cold if it feels firm under your hand, it is strong enough. You may prepare any colours in this size while it is warm, and it will take off the glare which would appear upon them by candle-light, if mixed with gum-water.

To recover Colours when decayed.

Take rosemary-water double-distilled, or pure spirit of rosemary, and with a few drops of it, temper your colours, which, however dead and faded, will recover their bloom and brilliance.

This water or spirit will prevent the bubbles in white and umber, which are troublesome in grinding.

C H A P. IX.

OF PAINTING ON SILK OR SATIN.

FIRST make an outline according to your fancy, then lay on a wash of isinglass, with great care, which will remove the glare and sleekness of the silk, being necessary to make your colours work freely; melt the isinglass in clear water, so as not to be very glutinous; otherwise it would spoil your colours and discolour your silk. Observe your lights are to be made by a small tint, mixt with flake white, of the colour of the intended flower, just sufficient to make a degree from the colour of the silk: for instance, if a blue flower, a very small quantity of bice or blue verditure mixt with the white, using less of the white in proportion as the shades grow darker; indigo may be used alone in the darkest shades. Take care never to lay your colours on the silk thick, as then they will be apt to crack; to prevent which it may be proper to mix a little white sugar-candy with the gum-water. If your flower is so deep as not to admit of a pure white, in any part, lay on a priming of white, which being thoroughly dry, proceed to the ground colour of the flower, advancing gradually with the shades, as before directed.

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H 2 method,

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